

Unit 8F The world of professional designers (optional)

About the unit

The main aim of this unit is for pupils to learn about the work of designers and engineers who have influenced the development of products today and in the past.

There is a choice of three design and make assignments (DMAs) on the themes:

- In the style of... (resistant materials and/or textiles)
- Times past (resistant materials and/or textiles)
- Dedicated to tradition (food)

These require pupils to develop products by considering how designers, architects, engineers and other innovators and makers work (today and in the past), and by looking at how culture and lifestyle influence products.

Pupils gain the knowledge, skills and understanding they need to carry out the DMA successfully through product evaluation activities and focused practical tasks. They:

- understand how other designers, engineers and makers work
- understand how the design of products is influenced by fashion, culture or lifestyle
- develop an awareness of design movements and influences which change a product over time

There are also opportunities for pupils to:

- discover that D&T can change people's lives
- develop an understanding of what influences and determines the quality of their, and other people's, lives

Where the unit fits in

This unit is expected to take 6–9 hours.

It is helpful if the activities and DMAs for this unit are planned across the department so that pupils are able to draw on knowledge, skills and understanding from across the units to reinforce their learning and avoid unnecessary repetition. The suggested DMAs enable teachers to link different areas of D&T easily, *eg 'In the style of...'*, can be taught across resistant materials and textiles.

Teachers could choose to teach just the product evaluation activities and focused practical tasks, and then move on to unit 8B 'Designing for clients' before completing a DMA.

This unit can be used in year 9. Pupils doing this unit later in year 8 or in year 9 should be able to complete more of the optional activities.

Expectations

At the end of this unit

most pupils will: study an era, a product and someone associated with the product (usually its designer), and identify elements of some of the following: innovation, function, fitness for purpose, styling trends, aesthetic context, and social and environmental impact of the product; create a product, using the work of the chosen designer as a clear source of inspiration; or produce a small display with product models that reflect the period being studied and include some interactivity with the viewer

some pupils will not have made so much progress and will: study an era, a product and someone associated with the product (usually its designer), and show some awareness of elements of function, fitness for purpose and styling trends; model a product that reflects the designer's work in some way; or produce a mock-up of a display with elements that reflect the period, but with little interactivity and less evidence of understanding of the characteristics of the period

some pupils will have progressed further and will: carry out a perceptive, in-depth study of an era, a product and someone associated with the product (usually its designer), and identify several of the elements of innovation, function, fitness for purpose, styling trends, aesthetic context, and social and environmental impact of the product; create a high-quality product, using the work of the chosen designer as a clear source of inspiration, showing empathy for the work, and adding their own original ideas; or produce a small display with product models that show empathy for the period being studied and include interactive elements that engage the viewer effectively

Prior learning

It is helpful if pupils have:

- learnt how products, *eg slippers*, are designed for different purposes
- related the way products are designed to their intended user and purpose, *eg animal slippers are suitable for children, older people need a non-slip sole for safety, slippers need to be warm*
- distinguished between functional and decorative products
- learnt that designers evaluate and modify prototypes before starting a production run
- found out about the conflicting demands faced by designers and makers

Pupils should have gained the above knowledge, skills and understanding in years 6, 7 and 8, through unit 6B 'Slippers' in the key stage 2 scheme of work, unit 7B 'Designing and making for yourself' and unit 8B 'Designing for clients', or similar projects.

Language for learning

Through the activities in this unit, pupils will be able to understand, use and spell correctly words relating to:

- professional roles, *eg product designer, industrial designer, fashion designer, textiles designer, graphic designer, packaging designer, civil engineer, electrical engineer, mechanical engineer, food technologist, architect*
- fashion and aesthetics, *eg line, balance, colour, shape, form, texture, style, contemporary, modern, trends, contrast, streamlined, brutalist, decoration, minimalist, classic, traditional, casual, lifestyle*
- the product designer or technology studied, *eg high-rise, consumer electronics, suspension bridge, cook-chill, cut on the bias, high volume, custom-made*

Speaking and listening – through the activities pupils could:

- describe and evaluate how the work was undertaken and what led to the conclusions

Writing – through the activities pupils could:

- organise facts/ideas/information in an appropriate sequence
- group sentences into paragraphs that are clearly focused and well developed
- link ideas and paragraphs into continuous text which is organised and coherent
- show relationships between ideas by links which show purpose, *eg in order to, so that*, and reservation, *eg although, unless, if*

Resources

Resources include:

- collections or pictures/photographs of products displaying different responses to similar needs, preferably over a significant period of time
- video and CD-ROM materials that include case studies of designers and inventors
- magazines, journals and directories, *eg 'The Conran Directory of Design' (Guild Publishing), 'Designing', 'Design', 'Architectural Review', 'Elle', 'Vogue', 'Elle Decoration'*
- furniture and other product catalogues
- design-related museums, *eg Victoria and Albert Museum, Design Museum*
- museums of local life, *eg St Fagans, Castle Museum York, Weald & Downland, Black Country Museum*
- useful websites, *eg museum websites with exhibits of products*
 - www.design-council.org.uk
 - www.youngeng.org
 - www.linst.ac.uk/lcf
 - www.artdes.mmu.ac.uk
 - www.rca.org.uk

Future learning

This unit leads to further work in the later years of schooling, which will benefit from an awareness of D&T in the world, including contemporary and past designers, leading product development companies, outstanding engineers and fashion designers. Projects which focus on these topics provide an underpinning knowledge that strengthens pupils' designing skills and their understanding of technological developments and their impact, and allows pupils to place their own work in its cultural context.

Out-of-school activities and homework

Pupils could:

- compile a folio of the designs of the era, design group or person that they are studying. They could talk to people, look at the products around them, go to libraries and museums, and try looking on the internet. Their folio might be on paper, or be a multimedia presentation of annotated drawings, photographs and/or digital images that relate to the environment in which the product was launched. This background study will underpin their design and make assignment

Links with other subjects

- Art and design: 'Visiting a museum, gallery or site' (general unit), developing interest in the work of a designer.
- History: studying famous people who worked in the engineering field, *eg Dunlop, Morris (Lord Nuffield)*, linking the engineering and styling limitations of a period.

Learning objectives

Pupils should learn:

Possible teaching activities**Learning outcomes**

Pupils:

Points to note**DESIGN AND MAKE ASSIGNMENT (DMA)**

- to design and make a product that shows they understand the cultural context of D&T, the influence of major design groups on products, and how products are influenced by design ideas and technological advances, *eg engineering possibilities at the time of manufacture*, by applying the knowledge, skills and understanding they developed during the product evaluation activities and focused practical tasks

Set the pupils a DMA in which they develop products by considering how designers, architects, engineers and other innovators and makers work (today and in the past), and how culture and lifestyle influence products. Developing their products should deepen pupils' understanding of design movements and influences, and help them recognise how products reflect ideas from the past and people's priorities and expectations at the time.

Examples

These example DMAs have been written so they can be copied and given directly to pupils. Further details and contexts can be added, as appropriate.

In the style of...

The Italian designer Ettore Sottsass set up a design group called Memphis in the 1980s. The Memphis designers decided to follow just one rule in their work – the outcome must be fun! Design an unusual gift for a friend or relative, investigating the work of Memphis or other modern designers and using their ideas as a source of inspiration.

Times past

A new museum that specialises in comparing today with life in the past wants you to produce an exhibition piece that focuses on the historical development of a single everyday product, *eg the telephone, the torch, the pen*. Copies of the products in the exhibition piece will be produced for sale in the museum shop.

Dedicated to tradition

The market research of a supermarket chain has shown that many of its customers find 'traditional' ready-prepared meals unauthentic. The chain has decided to launch a new range of authentic meals, using ingredients and processes associated with different countries. Develop a proposal for two ranges of ready-prepared meals, showing how the ingredients, cooking processes and customs of particular countries have been taken into account. Investigate costs, the availability of ingredients, and scale of production.

- identify a wider range of criteria that address issues around the product as well as the product itself, including how lifestyle influences products
- draw on a wide range of information sources to stimulate ideas
- develop diverse ideas by thinking widely
- recognise the conflicting demands faced by designers
- decide which design criteria conflict and which should take priority
- describe progress in terms of design demands, criteria and priorities
- write a review of their learning in the DMA, with emphasis on what they have learnt from the work of other designers and from investigating people's priorities
- consider a range of suitable construction techniques and materials/ingredients

Language for learning during group review

- Organise interim reviews, in groups, in which pupils describe how their thinking has developed to this point, what the conflicts have been, and how they decided on a way forward.
- Design students often sit down together and 'crit' (criticise helpfully) each other's work. It is helpful if pupils prepare by:
 - having all their work together
 - sorting it out in order
 - making sure the best ideas are shown clearly
- Then each pupil starts by saying:
 - what they are working on
 - why it is like it is
 - what they are pleased about in their design
 - what worries they have
 Each pupil in the group should try to give positive comments and criticism (remembering that everyone will be doing the same to them!).

Language for learning when reviewing learning

- When pupils write a review of the DMA, remind them of the need for a logical structure, effective paragraphing, clear relationships between ideas and actions, and appropriate use of words.

■ essential activities

○ optional activities

Pupils should learn:

Pupils:

PRODUCT EVALUATION

- Organise a range of activities that give pupils an opportunity to:
- see how designers identify the need for a product and develop appropriate solutions
 - evaluate products in terms of their impact on people and the environment
 - evaluate products in terms of how they fit into the times in which they were developed, considering their technological, styling and lifestyle context

- that products are the result of human endeavour, inspired by a range of motivations including the desire to resolve human needs, satisfy people's wants, and create profits, *eg look at bicycle lamps from before the Second World War, after the development of plastics and since electronics, including the complexity of their manufacture and the cost of production and the price of the lamps*
- Ask the pupils to draw two diagrams, *eg a mind-map and a spider diagram*, showing the sequence of changes in a product over time and some reasons for these changes.
- Watch and discuss with the pupils videotaped case studies of designers' work. Consider how people lived in the time (or are living today, if it is a contemporary case study), and how the product enhanced their lives. Talk about the materials used and discuss why they were chosen, bearing in mind the period.
- identify some of the major differences in the approaches designers take to their work and why
- describe how products change over time and explain some reasons for this, *eg new materials, manufacturing methods, labour costs*
- that products, *eg wooden chairs from the nineteenth century, steel-framed chairs from the 1920s, plastic chairs from the 1960s*, are the result of the thinking of their times, as well as available materials, processes and technologies
- Look together at collections or pictures/photographs of contemporary products and their forerunners, comparing and contrasting their features, looking at their relative merits, and explaining reasons for their similarities and differences, *eg to compare products of the 1970s and early 1980s with those of today; to compare the simple clean 'form follows function' lines of household appliances before those of Memphis with the contemporary 'post-modern' styles that introduce unnecessary curves*.
- Ask the pupils to consider the intentional and unintentional impacts of new products, especially those with important social consequences, *eg a new bridge linking communities*, or environmental consequences, *eg synthetic polymers being non-biodegradable*.
- relate products from a particular country to the social conditions of the time in which they were produced, drawing on relevant learning in history
- give at least one example of a product that has had unintended effects on people or the environment

■ essential activities

○ optional activities

Learning objectives

Pupils should learn:

- that some products evolve and others are instantly revolutionary

Possible teaching activities

- Ask the pupils to identify new products that they are aware of emerging in their lifetime and to consider their impact, *eg Beanies*. Discuss how the aesthetics, function and purpose of products are influenced by competition and thinking when they are designed, *eg computer games and their marketing are based on contemporary themes, aimed at people's subconscious desires and feelings*.
- Ask the pupils to analyse a range of ethnic cook-chill meals to work out the food technologist's original idea, *eg a Thai dish*. Ask the pupils to produce a moodboard, representing the inspiration for the products. Discuss with them whether cook-chill meals are becoming more authentic, *eg true to the cultural traditions that inspire them*.

Learning outcomes

Pupils:

- identify at least two new products of their time, showing that they understand how products change over time
- identify the reasons for producing a new or changed product

Points to note**FOCUSED PRACTICAL TASKS (FPTs)**

These practical tasks should focus on the knowledge, skills and understanding in 'About the unit'. They should give pupils an opportunity to practise any new skills they will need during the DMA, *eg to help pupils become aware of design movements and influences*.

- to study products by making observations and analytical drawings to show how design is influenced by fashion, culture, or lifestyle

- Show the pupils a range of products or pictures/photographs of them. Discuss the differences between them, considering the materials and manufacturing techniques used, and counting the number of parts and processes used in production.
- Ask the pupils to look at a pair of products from different periods and draw their appearance, annotating features, *eg materials, designed functions*.

- describe the relationship between product design, materials and manufacturing methods, showing understanding of how these are changing over time

- to draw accurately, using different drawing projections

- Demonstrate different formal orthographic and pictorial drawing systems to the pupils and ask them to use one. Explain the usefulness and limitations of the drawing technique chosen, *eg draw separately the main components of a product in an 'exploded' orthographic view (the more able may attempt this in a pictorial projection)*.

- develop skills in draughting and knowledge of standard draughting methods, *eg produce an 'exploded' orthographic view and describe why it is a useful way to draw a projection*

Use of language

- Pupils will also be familiar with the term 'draft'. To avoid confusion, different uses of terms in D&T need to be made clear.

■ essential activities

○ optional activities

Learning objectives

Pupils should learn:

- to design directly in 3-D using low-cost, quick-to-use materials, without preliminary drawings

Possible teaching activities

- Set the pupils tasks to show them how designing can be carried out directly in 3-D. Give them an opportunity to create a range of quality outcomes quickly using easy-to-use materials, eg
 - to develop a block model in soft foam of a gift inspired by the Memphis group
 - to create two or three different display designs in card, adding notes and sketches to indicate how they might be made interactive
 - to develop a design for headgear by rapid prototyping using recycled materials

Learning outcomes

Pupils:

- assess and make judgements about form and mass relationships through 3-D modelling
- practise experimental and test procedures, give reasons why it is important to carry out trials before committing to an approach, and select modelling methods suitable for the purposes, eg *prototyping a hat in scrap card*
- analyse the influences and methods of work of a high-profile chef and produce a range of savoury snacks in their style

Points to note

Health and safety – when cutting card with modelling knives, pupils should be given clear instructions on the use of steel safety rules and cutting boards and how to hold the knife

- to develop food product ideas based on a style or context

- Ask the pupils to develop ideas for a small range of savoury snacks inspired by an influential 'chef'. They should identify the type of food the chef produces, their style or approach, and any cultural influences. Pupils could start by reviewing a celebrity frozen meal range, eg *Gary Rhodes, Linda McCartney*, or watching a video of a chef at work, eg *Jamie Oliver, Anton Mossiman*.

■ essential activities

○ optional activities